study area are below 2000 ft and are considered too low to support the spruce-fir forest habitat for this species. No impacts to Carolina northern flying squirrel populations are expected as a result of this project due to the absence of high elevation habitat within the project study area.

Indiana bat – The Indiana bat is a small, brown bat measuring 3.0 to 3.6 inches in total length. The Indiana bat is distinguished from other eastern bats by having a keeled calcar (cartilaginous projection from the hind foot), relatively small ears that do not extend beyond the nose when pulled forward, short toe hairs that do not extend beyond the toes, and two tiny teeth in a gap between the canines and cheek teeth (Handley 1991).

Indiana bats hibernate in the winter in limestone caves usually where standing water is present (Webster et al. 1985). Indiana bats also use mine tunnels for hibernation (Handley 1991). In the summer, males continue to roost in caves, but females in maternity colonies, normally roost under the loose bark of dead, large-diameter trees; however, living shagbark hickories (*Carya ovata*) and tree cavities are also used occasionally (Gardner et al. 1991; Callahan 1993; Kurta et al. 1993).

BIOLOGICAL CONCLUSION: May Affect – Not Likely to Adversely Affect

No known occurrences of the Indiana bat have been documented within 3.0 miles of the project study area (NCNHP 2003a). No caves or large diameter trees which are ideal habitat for the Indiana bat were noted within the project study area. However, large cliff faces and outcrops were not able to be systematically checked for small cave entrances and may provide potential habitat. Impacts to Indiana bat populations as a result of this project cannot be determined at this point.

Gray bat - Populations are found mainly in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee, with a few colonies occurring in northwestern Florida, western Georgia, southwestern Kansas, south Indiana, south Illinois, northeastern Oklahoma, northeastern Mississippi, western Virginia, and possibly western North Carolina.

Gray bats live in colonies in caves, utilizing different caves for summer roosting and winter hibernating. Summer caves are usually within a kilometer of a river or reservoir, which provides foraging habitat. During the summer, females give birth and rear the young in maternity caves, while males and yearlings roost in separate bachelor caves. Caves preferred for hibernation are typically deep, vertical caves with a temperature between 6 and 11 degrees Celsius. Gray bats are highly selective in choosing suitable caves, and nine known caves are thought to provide hibernation space for 95% of the population. Migration from summer to winter caves begins in September and is mainly complete by the beginning of November. The distance between summer and winter caves can be as little as 2 miles, but in some cases is greater than 200 miles.

BIOLOGICAL CONCLUSION: May Affect – Not Likely to Adversely Affect

No known occurrences of the gray bat have been documented within 3.0 miles of the project study area. No caves which are ideal habitat for the gray bat were noted within the project study area. However, large cliff faces and outcrops were not able to be systematically checked for cave entrances and may provide potential habitat. Impacts to gray bat populations as a result of this project cannot be determined at this point.